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1	Table 11-1. Summary of Deterministic Baseline Ecological Risk Assessment Results for Portland Harbor for Chemicals with HQ ≥ 1.0 Posing Potentially Unacceptable Risks (all HQ's to two significant figures)
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3	Assessment Endpoint
4	1. Aquatic Plants
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14	1. Aquatic Plants
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	B	C	D	E
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3	Measurement Endpoint	Line of Evidence in Support of Measurement Endpoint	Chemical	Number of samples with HQ ≥ 1.0 / Total number of samples
4	1. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRVs	Naphthalene	10 of 268
5			Total DDX	35 of 170 (1 of 170)
6			Benzo(a)pyrene	3 of 245
7			Benzo(a)anthracene	2 of 245
8			4,4'-DDT	19 of 170 (0 of 170)
9			Trichloroethene	1 of 23
10			bis(2-ethylhexyl)phthalate	2 of 190
11			Ethylbenzene	1 of 23
12			Monobutyltin	1 of 167
13			Total PCB	2 of 160 (0 of 160)
14			Zinc	1 of 167
15	1. Water exposure contaminant concentrations compared to AWQC or TRVs	2. Transition zone water concentration compared to AWQC or TRVs	Total DDX	8 of 12 (8 of 12)
16			4,4'-DDT	3 of 12 (3 of 12)
17			Barium	49 of 49
18			Carbon disulfide	1 of 56
19			Manganese	49 of 49
20			Iron	46 of 49
21			Chlorobenzene	2 of 56
22			Gasoline fraction (aliphatic): C <sub>10</sub> - C <sub>12</sub>	12 of 22
23			Naphthalene	5 of 72
24			Sodium	9 of 49
25			Cyanide	1 of 2
26			Chloroform	2 of 56
27			Perchlorate	3 of 17
28			Benzo(a)pyrene	8 of 37
29			Zinc	1 of 30
30			Benzo(a)anthracene	9 of 37
31			Magnesium	6 of 49
32			Cadmium	6 of 30
33			Phenanthrene	7 of 37
34			Fluorene	6 of 37
35			Ethylbenzene	1 of 56
36			Potassium	2 of 49
37			Anthracene	3 of 37
38			Chloroethane	1 of 56
39			2-methylnaphthalene	3 of 37
40			Acenaphthene	2 of 37
41			Lead	2 of 30
42			Toluene	1 of 56
43			1,2,4-Trimethylbenzene	1 of 5
44			1,2-Dichlorobenzene	1 of 56
45			Nickel	2 of 30
46			Isopropylbenzene	1 of 56
47			Gasoline fraction (aliphatic): C <sub>4</sub> - C <sub>6</sub>	2 of 22
48			Copper	1 of 22

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3	Maximum HQ Value	Location(s) with highest HQ's
4	50	River mile 5.5 to 6.5
5	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
6	14	River mile 5.5 to 6.5
7	10	River mile 5.5 to 6.5
8	4.7 (0.43)	River mile 5.5 to 9.5
9	4.1	River mile 6.5 to 7.5
10	2.3	River mile 3.5 to 4.5
11	1.6	River mile 6.5 to 7.5
12	1.2	River mile 10.5 to 11.8
13	1.2 (0.089)	River mile 6.5 to 7.5
14	1.1	River mile 9.5 to 10.5
15	3100 (280)	Arkema acid plant area
16	1800 (160)	Arkema acid plant area
17	1100	Arkema chlorate plant area
18	870	Gasco
19	550	Arkema chlorate plant area
20	250	Arkema chlorate plant area
21	190	Arkema acid plant area
22	100	Gasco
23	57	
24	55	Arkema chlorate plant area
25	23	
26	21	
27	19	Arkema chlorate plant area
28	15	
29	14	ARCO
30	8.5	
31	7.0	Arkema acid plant area
32	5.8	Rhône Poulenc
33	4.6	
34	4.6	
35	4.5	
36	3.7	
37	3.6	
38	3.4	
39	3.4	
40	3.3	
41	3.0	
42	2.9	
43	2.0	
44	1.9	
45	1.6	Arkema chlorate plant area
46	1.3	
47	1.3	
48	1.3	Rhône Poulenc

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4	Aquatic plant surface water TRVs should be all chemicals in any surface water sample with HQ > 1. BERA ignores phytoplankton exposure, which have potential exposure across the entire site, unlike macrophytes. BERA needs changed, I've already made needed changes to this table.
5	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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49	2. Benthic Macroinvertebrates
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73	2. Benthic Macroinvertebrates
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	B	C	D	E
49	1. Sediment toxicity testing to empirically assess adverse effects	Results presented in Table 11-? (results don't fit in this format). Survival and biomass of <i>Chironomus dilutus</i> in 10 day exposures, survival and biomass of <i>Hyalella azteca</i> in 28 day exposures	Response based on 10 or 28 day exposure to chemical mixtures, <i>Hyalella</i> and <i>Chironomus</i> toxicity tests not designed to identify individual chemicals posing potentially unacceptable risk	
50	2. Interpretation of sediment toxicity tests using predictive models	1. Floating percentile model	Total LPAH	NA 143 of 1183 (Level 2 Hyalella biomass)
51			Sum DDT's	110 of 899 (Level 2 Hyalella biomass)
52			Mercury	58 of 1109 (Level 3 Hyalella biomass)
53			Total HPAH	72 of 1183 (Level 2 Chironomus biomass)
54			Total endosulfan	40 of 851 (Level 3 Chironomus biomass)
55			Dibenzofuran	46 of 1088 (Level 2 Chironomus survival)
56			Benzyl alcohol	23 of 990 (Level 2 Hyalella biomass)
57			Phenol	38 of 1046 (Level 2 Hyalella biomass)
58			Cadmium	127 of 1126 (Level 2 Chironomus survival)
59			δ-HCH	12 of 848 (Level 2 Hyalella biomass)
60			Sulfide	42 of 198 (Level 2 Hyalella biomass)
61			Total PCB	31 of 908 (Level 2 Chironomus biomass)
62			4-methylphenol	160 of 1047 (Level 3 Chironomus biomass)
63			Silver	359 of 1110 (Level 2 Hyalella biomass)
64			Carbazole	16 of 993 (Level 2 Chironomus survival)
65			Sum DDD's	28 of 900 (Level 2 Chironomus biomass)
66			Endrin ketone	4 of 851 (All Level 2 and Level 3 endpoints)
67			Chromium	63 of 1122 (Level 3 Hyalella biomass)
68			Dieldrin	2 of 846 (All Level 2 and Level 3 endpoints)
69			Endrin	2 of 700 (Level 2 Chironomus survival)
70			β-HCH	4 of 851 (All Level 2 and Level 3 endpoints)
71			Copper	15 of 1122 (Level 2 Chironomus biomass)
72			Ammonia	92 of 200 (Level 2 Hyalella biomass)
73			Sum DDE's	2 of 897 (All Level 2 and Level 3 endpoints)
74	2. Interpretation of sediment toxicity tests using predictive models	2. Logistic regression model	Anthracene	48 of 1183 (Level 2 toxicity)

	F	G
49	NA	
50	1800	
51	760	
52	280	
53	200	
54	190	
55	180	
56	170	
57	98	
58	91	
59	79	
60	64	Sulfide data not included in BERA sediment chemistry master file but in Attachment 6, Part D for bioassay data
61	62	
62	54	
63	52	
64	29	
65	27	
66	24	
67	17	
68	17	
69	9.7	
70	9.2	
71	7.9	
72	3.0	Ammonia data not included in BERA sediment chemistry master file, but in Attachment 6, Part D for bioassay stations
73	2.8	
74	210	

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114	2. Benthic Macroinvertebrates
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125	2. Benthic Macroinvertebrates
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B	C	D	E	
75	2-methylnaphthalene		25 of 1113 (Level 2 toxicity)	
76	Lead		24 of 1136 (Level 2 toxicity)	
77	Carbazole		26 of 993 (Level 2 toxicity)	
78	cis-Chlordane		6 of 851 (Level 2 toxicity)	
79	Total PAH		27 of 1183 (Level 2 toxicity)	
80	Total LPAH		23 of 1183 (Level 2 toxicity)	
81	Diesel range organics		25 of 533 (Level 2 toxicity)	
82	Total PCB		1 of 908 (Level 2 toxicity)	
83	Sum DDE's		7 of 897 (Level 2 toxicity)	
84	Tributyltin		5 of 222 (Level 2 toxicity)	
85	4,4'-DDT		14 of 889 (Level 2 toxicity)	
86	Sulfide		4 of 198 (Level 2 toxicity)	
87	Dibenzofuran		17 of 1088 (Level 2 toxicity)	
88	Fluorene		20 of 1183 (Level 2 toxicity)	
89	Total DDX		11 of 900 (Level 2 toxicity)	
90	2,4'-DDD		10 of 844 (Level 2 toxicity)	
91	Acenaphthene		16 of 1183 (Level 2 toxicity)	
92	Sum DDD's		10 of 900 (Level 2 toxicity)	
93	4,4'-DDD		6 of 900 (Level 2 toxicity)	
94	Copper		10 of 1122 (Level 2 toxicity)	
95	Phenol		6 of 1046 (Level 2 toxicity)	
96	Silver		119 of 1110 (Level 2 toxicity)	
97	Benzo(a)anthracene		9 of 1183 (Level 2 toxicity)	
98	4,4'-DDE		3 of 897 (Level 2 toxicity)	
99	Chrysene		10 of 1183 (Level 2 toxicity)	
100	Dibenzo(a,h)anthracene		11 of 1183 (Level 2 toxicity)	
101	Phenanthrene		12 of 1183 (Level 2 toxicity)	
102	Fluoranthene		12 of 1183 (Level 2 toxicity)	
103	Benzo(b)fluoranthene		9 of 1067 (Level 2 toxicity)	
104	Total HPAH		9 of 1183 (Level 2 toxicity)	
105	Benzo(g,h,i)perylene		10 of 1183 (Level 2 toxicity)	
106	Indeno(1,2,3-cd)pyrene		9 of 1183 (Level 2 toxicity)	
107	Mercury		22 of 1109 (Level 2 toxicity)	
108	Pyrene		8 of 1183 (Level 2 toxicity)	
109	Benzo(k)fluoranthene		16 of 1033 (Level 2 toxicity)	
110	Acenaphthylene		8 of 1183 (Level 2 toxicity)	
111	Dibutyl phthalate		0 of 1120 (Level 2 toxicity)	
112	Chromium		10 of 1122 (Level 2 toxicity)	
113	δ-HCH		5 of 848 (Level 2 toxicity)	
114	3. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRVs	Naphthalene Total DDX Benzo(a)pyrene Benzo(a)anthracene 4,4'-DDT Trichloroethene bis(2-ethylhexyl)phthalate Ethylbenzene Monobutyltin Total PCB Zinc	10 of 268 35 of 170 (1 of 170) 3 of 245 2 of 245 19 of 170 (0 of 170) 1 of 23 2 of 190 1 of 23 1 of 167 2 of 160 (0 of 160) 1 of 167
125	3. Water exposure contaminant concentrations compared to AWQC or TRVs	2. Transition zone water concentration compared to AWQC or TRVs	Cyanide Total DDX Benzo(a)pyrene	34 of 34 10 of 14 34 of 102

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75	140	
76	53	
77	46	
78	39	
79	20	
80	18	
81	17	
82	12	
83	12	
84	11	
85	10	
86	9.8	Sulfide data not included in BERA sediment chemistry master file, but in Attachment 6, Part D for bioassay samples
87	9.5	
88	9.1	
89	8.0	
90	6.8	
91	6.6	
92	6.2	
93	5.9	
94	5.3	
95	5.2	
96	4.9	
97	4.6	
98	4.5	
99	4.3	
100	4.2	
101	4.2	
102	4.1	
103	4.0	
104	3.9	
105	3.8	
106	3.8	
107	3.5	
108	3.3	
109	3.2	
110	2.8	
111	2.8	BERA Table 6-13 shows no HQ > 1 but BERA Table 6-44 gives max. HQ = 2.8
112	2.7	
113	2.5	
114	50	River mile 5.5 to 6.5
115	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
116	14	River mile 5.5 to 6.5
117	10	River mile 5.5 to 6.5
118	4.7 (0.43)	River mile 5.5 to 9.5
119	4.1	River mile 6.5 to 7.5
120	2.3	River mile 3.5 to 4.5
121	1.6	River mile 6.5 to 7.5
122	1.2	River mile 10.5 to 11.8
123	1.2 (0.089)	River mile 6.5 to 7.5
124	1.1	River mile 9.5 to 10.5
125	4400	Gasco
126	3100 (280)	Arkema acid plant area
127	2700	Siltronic

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115	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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	B	C	D	E
128		Trichloroethene		2 of 136
129		4,4'-DDT		3 of 14
130		4,4'-DDD		6 of 14
131		Benzo(a)anthracene		31 of 102
132		Barium		93 of 93
133		Naphthalene		31 of 149
134		2,4-DDD		10 of 14
135		Carbon disulfide		4 of 136
136		Manganese		105 of 106
137		Gasoline fraction (aliphatic): C <sub>10</sub> - C <sub>12</sub>		36 of 68
138		Iron		101 of 106
139		Chlorobenzene		3 of 136
140		4,4'-DDE		3 of 14
141		cis-1,2-Dichloroethene		5 of 136
142		2,4-DDT		3 of 14
143		Anthracene		28 of 102
144		Benzo(g,h,i)perylene		13 of 102
145		Indeno(1,2,3-cd)pyrene		13 of 102
146		Phenanthrene		36 of 102
147		Ethylbenzene		15 of 136
148		Sodium		11 of 93
149		Benzo(b)fluoranthene		13 of 102
150		1,2-Dichlorobenzene		5 of 136
151		2-methylnaphthalene		11 of 89
152		Total xylenes		13 of 136
153		Benzene		9 of 136
154		Fluorene		36 of 102
155		Chloroform		4 of 136
156		Vanadium		6 of 13
157		Perchlorate		5 of 21
158		Toluene		11 of 136
159		Acenaphthene		24 of 102
160		Chrysene		10 of 102
161		Fluoranthene		11 of 102
162		1,4-Dichlorobenzene		2 of 128
163		Pyrene		11 of 102
164		Zinc		1 of 55
165		Benzo(k)fluoranthene		10 of 102
166		Dibenzo(a,h)anthracene		8 of 102
167		o-Xylene		12 of 136
168		1,2,4-Trimethylbenzene		11 of 41
169		Gasoline fraction (aliphatic): C <sub>4</sub> - C <sub>6</sub>		15 of 68
170		Magnesium		8 of 106
171		Cadmium		10 of 55
172		m,p-Xylene		3 of 136
173		Gasoline fraction (aliphatic): C <sub>6</sub> - C <sub>8</sub>		7 of 62
174		Potassium		2 of 93
175		Cobalt		3 of 13
176		Chloroethane		1 of 136
177		Lead		4 of 55
178		1,3,5-Trimethylbenzene		5 of 41
179		Gasoline fraction (aromatic): C <sub>8</sub> - C <sub>10</sub>		3 of 68
180		Dibenzofuran		3 of 89
181		Beryllium		3 of 93
182		Isopropylbenzene		10 of 136
183		Nickel		3 of 55

	F	G
128	1900	Siltronic
129	1800 (160)	Arkema acid plant area
130	1300	Arkema acid plant area
131	1200	Siltronic
132	1100	Arkema chlorate plant area
133	1100	Siltronic
134	1100	Arkema acid plant area
135	870	Gasco
136	550	Arkema chlorate plant area
137	540	Gasco
138	250	Arkema chlorate plant area
139	190	Arkema acid plant area
140	120	Arkema acid plant area
141	110	Siltronic
142	93	Arkema acid plant area
143	87	Siltronic
144	66	Siltronic
145	61	Siltropic
146	57	Siltropic
147	57	Siltropic
148	55	Arkema chlorate plant area
149	49	Siltropic
150	46	Rhône Poulenc
151	40	Gasco
152	34	Siltropic
153	30	Siltropic
154	28	Siltropic
155	21	Arkema acid plant area
156	19	Siltropic
157	19	Arkema chlorate plant area
158	18	Siltropic
159	17	Siltropic
160	17	Siltropic
161	17	Siltropic
162	16	Rhône Poulenc
163	15	Siltropic
164	14	ARCO
165	14	Siltropic
166	13	Siltropic
167	12	Siltropic
168	9.6	Siltropic
169	7.3	Gasco
170	7.0	Arkema acid plant area
171	5.8	Rhône Poulenc
172	4.4	Siltropic
173	4.3	Gasco
174	3.7	Arkema chlorate plant area
175	3.6	Siltropic
176	3.4	Gunderson
177	3.0	Mobil Oil
178	3.0	Siltropic
179	2.7	Gasco
180	2.2	Gasco
181	2.0	Willbridge
182	2.0	Siltropic
183	1.6	Arkema chlorate plant area

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184		1,1-Dichloroethene		2 of 136
185		Copper		1 of 45
186	4. Benthic macroinvertebrate tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	1. Empirical (field-collected) whole body benthic macroinvertebrate concentration relative to tissue TRVs	No data presented, but could screen epibenthic inverts from Hester-Dendy samplers (2 to 7 samples available, depending on chemical)	NA
187	4. Benthic macroinvertebrate tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	2. Laboratory exposed worm ( <i>Lumbriculus variegatus</i> ) whole body concentrations relative to tissue TRVs	Tributyltin	1 of 35
188			Total PCB	8 of 35
189			Total DDX	2 of 35
190			Copper	1 of 35
191			Arsenic	2 of 35
192			Zinc	27 of 35
193			4,4'-DDD	1 of 35
194	4. Benthic macroinvertebrate tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	3. Empirical (field-collected) whole body epibenthic macroinvertebrate concentration (from Hester-Dendy samplers) relative to tissue TRVs	None	0 of 2
195	4. Benthic macroinvertebrate tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	4. Predicted (BSAF or FWM) worm ( <i>Lumbriculus variegatus</i> ) whole body concentration relative to tissue TRVs	Tributyltin	27 of 272
196			Total PCB	15 of 1100
197			Total DDX	15 of 1128
198	5. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	1. Bulk sediment concentration compared to consensus based probable effect concentrations (PECs)	Phenanthrene	145 of 1439
199			Pyrene	180 of 1439
200			Fluoranthene	136 of 1439
201			Anthracene	81 of 1439
202			Fluorene	85 of 1439
203			Total PAH	104 of 1439
204			Benzo(a)anthracene	131 of 1439
205			Chrysene	144 of 1439
206			Benzo(a)pyrene	121 of 1439
207			Sum DDT's	89 of 1154
208			Naphthalene	52 of 1440
209			Sum DDD's	119 of 1155
210			Lead	49 of 1392
211			Lindane ( $\gamma$ -HCH)	29 of 1107
212			Sum DDE's	52 of 1152
213			Mercury	3 of 1365
214			Total PCB	48 of 1163
215			Total Chlordane	43 of 1106
216			Total DDX	38 of 1155
217			Copper	66 of 1378
218			Nickel	30 of 1376
219			Cadmium	7 of 1382
220			Chromium	20 of 1378
221			Zinc	38 of 1392
222			Heptachlor epoxide	1 of 1107
223			Dieldrin	1 of 1107
224			Arsenic	8 of 1390

	F	G
184	1.6	Silttrinsic
185	1.3	Rhône Poulenc
186	NA	
187	11	
188	7.5	
189	3.2	
190	2.6	
191	1.5	
192	1.3	
193	1.2	
194	NA	
195	150	
196	19	
197	10	
198	1500	This line of evidence has no table of HQs in the BERA
199	860	
200	540	
201	460	
202	410	
203	320	
204	300	
205	290	
206	230	
207	210	
208	180	
209	110	
210	100	
211	86	
212	81	
213	62	
214	46	
215	40	
216	28	
217	19	
218	12	
219	9.3	
220	7.0	
221	6.2	
222	6.2	
223	5.8	
224	2.3	

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225	2. Benthic Macroinvertebrates
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	3. Bivalves
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	3. Bivalves
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	B	C	D	E
225	5. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	2. Bulk sediment concentration compared to mechanistic equilibrium partitioning (EqP) SQGs	Not evaluated in BERA	
226	5. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	3. Bulk sediment concentration compared to empirical probable effect levels (PELs)	Acenaphthene	256 of 1439
227			Phenanthrene	256 of 1439
228			Sum DDT's	301 of 1154
229			Anthracene	156 of 1439
230			Fluorene	163 of 1439
231			Pyrene	266 of 1439
232			Benzo(a)anthracene	253 of 1439
233			Fluoranthene	135 of 1439
234			Benzo(a)pyrene	198 of 1439
235			Chrysene	187 of 1439
236			Acenaphthylene	111 of 1439
237			Sum DDE's	142 of 1152
238			Sum DDD's	250 of 1155
239			Lindane ( $\gamma$ -HCH)	92 of 1107
240			2-methylnaphthalene	66 of 1369
241			Naphthalene	66 of 1440
242			Dibenzo(a,h)anthracene	167 of 1439
243			Lead	76 of 1392
244			Mercury	21 of 1365
245			Total Chlordane	68 of 1106
246			Dieldrin	10 of 1107
247			Heptachlor epoxide	11 of 1107
248			Nickel	52 of 1376
249			Copper	49 of 1378
250			Cadmium	8 of 1382
251			Chlordane (cis and trans)	1 of 188
252			Zinc	80 of 1392
253			Chromium	30 of 1378
254			Aroclor 1254	24 of 1154
255			Arsenic	17 of 1390
256			Total DDX	7 of 1155
257			Endrin	11 of 1107
258	1. Bivalve tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	1. Empirical (field-collected) whole body concentration relative to tissue based TRVs	Tributyltin (field clams)	1 of 34
259			Zinc (field clams)	34 of 38
260			Total PCB (field clams)	1 of 41
261			Copper (field clams)	32 of 38
262			Zinc (field mussels)	5 of 7
263	1. Bivalve tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	2. Laboratory exposed clam ( <i>Corbicula fluminea</i> ) whole body concentrations relative to tissue TRVs	Tributyltin	1 of 35
264			bis(2-ethylhexyl)phthalate	1 of 35
265			Total DDX	1 of 35

	F	G
225		
226	4800	This line of evidence has no table of HQs in the BERA
227	3300	
228	2700	
229	1600	
230	1500	
231	1500	
232	830	
233	510	
234	430	
235	430	
236	420	
237	370	
238	360	
239	310	
240	260	
241	260	
242	190	
243	150	
244	130	
245	79	
246	53	
247	36	
248	17	
249	14	
250	13	
251	9.8	
252	9.0	
253	8.6	
254	6.5	
255	4.4	
256	3.6	
257	3.2	Mistake in BERA Table 6-20, endrin has at least one sample with HQ > 1, table says 0
258	3.5	River mile 8.1, mouth of Swan Island Lagoon
259	2.2	Sitewide, with maximum at river mile 8.1
260	2.0	River mile 6.7
261	1.8	Sitewide, with maximum at river mile 8.1
262	1.7	River mile 7.8
263	4.5	River mile 8.1, mouth of Swan Island Lagoon
264	2.8	River mile 8.8 east
265	2.2	River mile 7.2 west

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266	3. Bivalves
267	3. Bivalves
268	3. Bivalves
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279	3. Bivalves
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	B	C	D	E
266	1. Bivalve tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	3. Predicted (BSAF or FWM) whole body concentration relative to tissue TRVs. For TBT, derive a site specific biota-sediment accumulation factor or use screening value based on sediment concentrations	Total PCB	5 of 1100
267			Total DDX	12 of 1128
268	2. Sediment toxicity testing to empirically assess adverse effects	Results presented in Table 11-? (results don't fit in this format). Survival of Corbicula in 28 day bioaccumulation tests recorded. <i>Hyalella</i> and <i>Chironomus</i> results used as bivalve surrogates.	Response based on 28 day exposure to chemical mixtures, <i>Corbicula fluminea</i> bioaccumulation tests not designed to identify individual chemicals posing potentially unacceptable risk	NA
269	3. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRV	Naphthalene	10 of 268
270			Total DDX	35 of 170 (1 of 170)
271			Benzo(a)pyrene	3 of 245
272			Benzo(a)anthracene	2 of 245
273			4,4'-DDT	19 of 170 (0 of 170)
274			Trichloroethene	1 of 23
275			bis(2-ethylhexyl)phthalate	2 of 190
276			Ethylbenzene	1 of 23
277			Monobutyltin	1 of 167
278			Total PCB	2 of 160 (0 of 160)
279			Zinc	1 of 167
280	3. Water exposure contaminant concentrations compared to AWQC or TRVs	2. Transition zone water concentration compared to AWQC or TRV	Cyanide	34 of 34
281			Total DDX	10 of 14
282			Benzo(a)pyrene	34 of 102
283			Trichloroethene	2 of 136
284			4,4'-DDT	3 of 14
285			4,4'-DDD	6 of 14
286			Benzo(a)anthracene	31 of 102
287			Barium	93 of 93
288			Naphthalene	31 of 149
289			2,4-DDD	10 of 14
290			Carbon disulfide	4 of 136
291			Manganese	105 of 106
292			Gasoline fraction (aliphatic): C <sub>10</sub> - C <sub>12</sub>	36 of 68
293			Iron	101 of 106
294			Chlorobenzene	3 of 136
295			4,4'-DDE	3 of 14
296			cis-1,2-Dichloroethene	5 of 136
297			2,4-DDT	3 of 14
298			Anthracene	28 of 102
299			Benzo(g,h,i)perylene	13 of 102
300			Indeno(1,2,3-cd)pyrene	13 of 102
301			Phenanthrene	36 of 102
302			Ethylbenzene	15 of 136
303			Sodium	11 of 93
304			Benzo(b)fluoranthene	13 of 102
305			1,2-Dichlorobenzene	5 of 136
306			2-methylnaphthalene	11 of 89
307			Total xylenes	13 of 136

	F	G
266	12	
267	6.7	
268	NA	No unacceptable mortality
269	50	River mile 5.5 to 6.5
270	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
271	14	River mile 5.5 to 6.5
272	10	River mile 5.5 to 6.5
273	4.7 (0.43)	River mile 5.5 to 9.5
274	4.1	River mile 6.5 to 7.5
275	2.3	River mile 3.5 to 4.5
276	1.6	River mile 6.5 to 7.5
277	1.2	River mile 10.5 to 11.8
278	1.2 (0.089)	River mile 6.5 to 7.5
279	1.1	River mile 9.5 to 10.5
280	4400	Gasco
281	3100 (280)	Arkema acid plant area
282	2700	Siltronic
283	1900	Siltrophic
284	1800 (160)	Arkema acid plant area
285	1300	Arkema acid plant area
286	1200	Siltrophic
287	1100	Arkema chlorate plant area
288	1100	Siltrophic
289	1100	Arkema acid plant area
290	870	Gasco
291	550	Arkema chlorate plant area
292	540	Gasco
293	250	Arkema chlorate plant area
294	190	Arkema acid plant area
295	120	Arkema acid plant area
296	110	Siltrophic
297	93	Arkema acid plant area
298	87	Siltrophic
299	66	Siltrophic
300	61	Siltrophic
301	57	Siltrophic
302	57	Siltrophic
303	55	Arkema chlorate plant area
304	49	Siltrophic
305	46	Rhône Poulenc
306	40	Gasco
307	34	Siltrophic

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268 Maximum Corbicula mortality was 2.3% greater than control survival, no significant toxicity as per p. 147-149 of BERA

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270 Values in () are from LWG derived TRVs. Need footnote at end of table saying this.

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281 Values in () are from LWG derived TRVs. Need footnote at end of table saying this.

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284 Values in () are from LWG derived TRVs. Need footnote at end of table saying this.

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341	3. Bivalves
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	B	C	D	E
308		Benzene		9 of 136
309		Fluorene		36 of 102
310		Chloroform		4 of 136
311		Vanadium		6 of 13
312		Perchlorate		5 of 21
313		Toluene		11 of 136
314		Acenaphthene		24 of 102
315		Chrysene		10 of 102
316		Fluoranthene		11 of 102
317		1,4-Dichlorobenzene		2 of 128
318		Pyrene		11 of 102
319		Zinc		1 of 55
320		Benzo(k)fluoranthene		10 of 102
321		Dibenz(a,h)anthracene		8 of 102
322		o-Xylene		12 of 136
323		1,2,4-Trimethylbenzene		11 of 41
324		Gasoline fraction (aliphatic): C <sub>4</sub> - C <sub>6</sub>		15 of 68
325		Magnesium		8 of 106
326		Cadmium		10 of 55
327		m,p-Xylene		3 of 136
328		Gasoline fraction (aliphatic): C <sub>6</sub> - C <sub>8</sub>		7 of 62
329		Potassium		2 of 93
330		Cobalt		3 of 13
331		Chloroethane		1 of 136
332		Lead		4 of 55
333		1,3,5-Trimethylbenzene		5 of 41
334		Gasoline fraction (aromatic): C <sub>8</sub> - C <sub>10</sub>		3 of 68
335		Dibenzofuran		3 of 89
336		Beryllium		3 of 93
337		Isopropylbenzene		10 of 136
338		Nickel		3 of 55
339		1,1-Dichloroethene		2 of 136
340		Copper		1 of 45
	4. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	1. Bulk sediment concentration compared to consensus based probable effect concentrations (PECs)		
341		Phenanthrene		145 of 1439
342		Pyrene		180 of 1439
343		Fluoranthene		136 of 1439
344		Anthracene		81 of 1439
345		Fluorene		85 of 1439
346		Total PAH		104 of 1439
347		Benzo(a)anthracene		131 of 1439
348		Chrysene		144 of 1439
349		Benzo(a)pyrene		121 of 1439
350		Sum DDT's		89 of 1154
351		Naphthalene		52 of 1440
352		Sum DDD's		119 of 1155
353		Lead		49 of 1392
354		Lindane ( $\gamma$ -HCH)		29 of 1107
355		Sum DDE's		52 of 1152
356		Mercury		3 of 1365
357		Total PCB		48 of 1163
358		Total Chlordane		43 of 1106
359		Total DDX		38 of 1155
360		Copper		66 of 1378

	F	G
308	30	Siltronic
309	28	Siltronic
310	21	Arkema acid plant area
311	19	Siltronic
312	19	Arkema chlorate plant area
313	18	Siltronic
314	17	Siltronic
315	17	Siltronic
316	17	Siltronic
317	16	Rhône Poulenc
318	15	Siltronic
319	14	ARCO
320	14	Siltronic
321	13	Siltronic
322	12	Siltronic
323	9.6	Siltronic
324	7.3	Gasco
325	7.0	Arkema acid plant area
326	5.8	Rhône Poulenc
327	4.4	Siltronic
328	4.3	Gasco
329	3.7	Arkema chlorate plant area
330	3.6	Siltronic
331	3.4	Gunderson
332	3.0	Mobil Oil
333	3.0	Siltronic
334	2.7	Gasco
335	2.2	Gasco
336	2.0	Willbridge
337	2.0	Siltronic
338	1.6	Arkema chlorate plant area
339	1.6	Siltronic
340	1.3	Rhône Poulenc
341	1500	This line of evidence has no table of HQs in the BERA
342	860	
343	540	
344	460	
345	410	
346	320	
347	300	
348	290	
349	230	
350	210	
351	180	
352	110	
353	100	
354	86	
355	81	
356	62	
357	46	
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360	19	

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368	3. Bivalves
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401	4. Decapods
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	B	C	D	E
361		Nickel		30 of 1376
362		Cadmium		7 of 1382
363		Chromium		20 of 1378
364		Zinc		38 of 1392
365		Heptachlor epoxide		1 of 1107
366		Dieldrin		1 of 1107
367		Arsenic		8 of 1390
368	4. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	2. Bulk sediment concentration compared to mechanistic equilibrium partitioning (EqP) SQGs	Not evaluated in BERA	
369	4. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	3. Bulk sediment concentration compared to empirical probable effect levels (PELs)		
370		Acenaphthene		256 of 1439
371		Phenanthrene		256 of 1439
372		Sum DDT's		301 of 1154
373		Anthracene		156 of 1439
374		Fluorene		163 of 1439
375		Pyrene		266 of 1439
376		Benzo(a)anthracene		253 of 1439
377		Fluoranthene		135 of 1439
378		Benzo(a)pyrene		198 of 1439
379		Chrysene		187 of 1439
380		Acenaphthylene		111 of 1439
381		Sum DDE's		142 of 1152
382		Sum DDD's		250 of 1155
383		Lindane ( $\gamma$ -HCH)		92 of 1107
384		2-methylnaphthalene		66 of 1369
385		Naphthalene		66 of 1440
386		Dibenz(a,h)anthracene		167 of 1439
387		Lead		76 of 1392
388		Mercury		21 of 1365
389		Total Chlordane		68 of 1106
390		Dieldrin		10 of 1107
391		Heptachlor epoxide		11 of 1107
392		Nickel		52 of 1376
393		Copper		49 of 1378
394		Cadmium		8 of 1382
395		Chlordane (cis and trans)		1 of 188
396		Zinc		80 of 1392
397		Chromium		30 of 1378
398		Aroclor 1254		24 of 1154
399		Arsenic		17 of 1390
400		Total DDx		7 of 1155
401	1. Decapod tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	1. Empirical (field-collected) whole body concentration relative to tissue TRVs	Copper	11 of 1107
402	1. Decapod tissue data (modeled, laboratory exposed or field collected) compared to tissue based TRVs	2. Predicted (BSAF or FWM) whole body concentration relative to tissue TRVs. For TBT, derive a site specific biota-sediment accumulation factor or use screening value based on sediment concentrations	Total PCB	32 of 32
403			Total DDx	20 of 1100
				13 of 1128

	F	G
361	12	
362	9.3	
363	7.0	
364	6.2	
365	6.2	
366	5.8	
367	2.3	
368		
369	4800	This line of evidence has no table of HQs in the BERA
370	3300	
371	2700	
372	1600	
373	1500	
374	1500	
375	830	
376	510	
377	430	
378	430	
379	420	
380	370	
381	360	
382	310	
383	260	
384	260	
385	190	
386	150	
387	130	
388	79	
389	53	
390	36	
391	17	
392	14	
393	13	
394	9.8	
395	9.0	
396	8.6	
397	6.5	
398	4.4	
399	3.6	
400	3.2	Mistake in BERA Table 6-20, endrin has at least one sample with HQ > 1, table says 0
401	2.6	
402	20	
403	9.1	

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	B	C	D	E
404	2. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	1. Bulk sediment concentration compared to consensus based probable effect concentrations (PECs)	Phenanthrene Pyrene Fluoranthene Anthracene Fluorene Total PAH Benzo(a)anthracene Chrysene Benzo(a)pyrene Sum DDT's Naphthalene Sum DDD's Lead Lindane ( $\gamma$ -HCH) Sum DDE's Mercury Total PCB Total Chlordane Total DDX Copper Nickel Cadmium Chromium Zinc Heptachlor epoxide Dieldrin Arsenic	145 of 1439 180 of 1439 136 of 1439 81 of 1439 85 of 1439 104 of 1439 131 of 1439 144 of 1439 121 of 1439 89 of 1154 52 of 1440 119 of 1155 49 of 1392 29 of 1107 52 of 1152 3 of 1365 48 of 1163 43 of 1106 38 of 1155 66 of 1378 30 of 1376 7 of 1382 20 of 1378 38 of 1392 1 of 1107 1 of 1107 8 of 1390
431	2. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	2. Bulk sediment concentration compared to mechanistic equilibrium partitioning (EqP) SQGs	Not evaluated in BERA	
432	2. Bulk sediment contaminant concentrations compared to published non-site specific sediment quality guidelines (SQGs)	3. Bulk sediment concentration compared to empirical probable effect levels (PELs)	Acenaphthene Phenanthrene Sum DDT's Anthracene Fluorene Pyrene Benzo(a)anthracene Fluoranthene Benzo(a)pyrene Chrysene Acenaphthylene Sum DDE's Sum DDD's Lindane ( $\gamma$ -HCH) 2-methylnaphthalene Naphthalene Dibenzo(a,h)anthracene Lead Mercury Total Chlordane	256 of 1439 256 of 1439 301 of 1154 156 of 1439 163 of 1439 266 of 1439 253 of 1439 135 of 1439 198 of 1439 187 of 1439 111 of 1439 142 of 1152 250 of 1155 92 of 1107 66 of 1369 66 of 1440 167 of 1439 76 of 1392 21 of 1365 68 of 1106

	F	G
404	1500	This line of evidence has no table of HQs in the BERA
405	860	
406	540	
407	460	
408	410	
409	320	
410	300	
411	290	
412	230	
413	210	
414	180	
415	110	
416	100	
417	86	
418	81	
419	62	
420	46	
421	40	
422	28	
423	19	
424	12	
425	9.3	
426	7.0	
427	6.2	
428	6.2	
429	5.8	
430	2.3	
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432	4800	This line of evidence has no table of HQs in the BERA
433	3300	
434	2700	
435	1600	
436	1500	
437	1500	
438	830	
439	510	
440	430	
441	430	
442	420	
443	370	
444	360	
445	310	
446	260	
447	260	
448	190	
449	150	
450	130	
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	B	C	D	E
452		Dieldrin		10 of 1107
453		Heptachlor epoxide		11 of 1107
454		Nickel		52 of 1376
455		Copper		49 of 1378
456		Cadmium		8 of 1382
457		Chlordane (cis and trans)		1 of 188
458		Zinc		80 of 1392
459		Chromium		30 of 1378
460		Aroclor 1254		24 of 1154
461		Arsenic		17 of 1390
462		Total DDX		7 of 1155
463		Endrin		11 of 1107
464	3. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRV		
465		Naphthalene		10 of 268
466		Total DDX		35 of 170 (1 of 170)
467		Benzo(a)pyrene		3 of 245
468		Benzo(a)anthracene		2 of 245
469		4,4'-DDT		19 of 170 (0 of 170)
470		Trichloroethene		1 of 23
471		bis(2-ethylhexyl)phthalate		2 of 190
472		Ethylbenzene		1 of 23
473		Monobutyltin		1 of 167
474		Total PCB		2 of 160 (0 of 160)
		Zinc		1 of 167
475	3. Water exposure contaminant concentrations compared to AWQC or TRVs	2. Transition zone water concentration compared to AWQC or TRV		
476		Cyanide		34 of 34
477		Total DDX		10 of 14
478		Benzo(a)pyrene		34 of 102
479		Trichloroethene		2 of 136
480		4,4'-DDT		3 of 14
481		4,4'-DDD		6 of 14
482		Benzo(a)anthracene		31 of 102
483		Barium		93 of 93
484		Naphthalene		31 of 149
485		2,4-DDD		10 of 14
486		Carbon disulfide		4 of 136
487		Manganese		105 of 106
488		Gasoline fraction (aliphatic): C <sub>10</sub> - C <sub>12</sub>		36 of 68
489		Iron		101 of 106
490		Chlorobenzene		3 of 136
491		4,4'-DDE		3 of 14
492		cis-1,2-Dichloroethene		5 of 136
493		2,4-DDT		3 of 14
494		Anthracene		28 of 102
495		Benzo(g,h,i)perylene		13 of 102
496		Indeno(1,2,3-cd)pyrene		13 of 102
497		Phenanthrene		36 of 102
498		Ethylbenzene		15 of 136
499		Sodium		11 of 93
500		Benzo(b)fluoranthene		13 of 102
501		1,2-Dichlorobenzene		5 of 136
502		2-methylnaphthalene		11 of 89
503		Total xylenes		13 of 136
504		Benzene		9 of 136
		Fluorene		36 of 102

	F	G
452	53	
453	36	
454	17	
455	14	
456	13	
457	9.8	
458	9.0	
459	8.6	
460	6.5	
461	4.4	
462	3.6	
463	3.2	Mistake in BERA Table 6-20, endrin has at least one sample with HQ > 1, table says 0
464	50	River mile 5.5 to 6.5
465	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
466	14	River mile 5.5 to 6.5
467	10	River mile 5.5 to 6.5
468	4.7 (0.43)	River mile 5.5 to 9.5
469	4.1	River mile 6.5 to 7.5
470	2.3	River mile 3.5 to 4.5
471	1.6	River mile 6.5 to 7.5
472	1.2	River mile 10.5 to 11.8
473	1.2 (0.089)	River mile 6.5 to 7.5
474	1.1	River mile 9.5 to 10.5
475	4400	Gasco
476	3100 (280)	Arkema acid plant area
477	2700	Siltronic
478	1900	Siltronic
479	1800 (160)	Arkema acid plant area
480	1300	Arkema acid plant area
481	1200	Siltronic
482	1100	Arkema chlorate plant area
483	1100	Siltronic
484	1100	Arkema acid plant area
485	870	Gasco
486	550	Arkema chlorate plant area
487	540	Gasco
488	250	Arkema chlorate plant area
489	190	Arkema acid plant area
490	120	Arkema acid plant area
491	110	Siltronic
492	93	Arkema acid plant area
493	87	Siltronic
494	66	Siltronic
495	61	Siltronic
496	57	Siltronic
497	57	Siltronic
498	55	Arkema chlorate plant area
499	49	Siltronic
500	46	Rhône Poulenc
501	40	Gasco
502	34	Siltronic
503	30	Siltronic
504	28	Siltronic

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465	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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476	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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479	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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547	5. Invertivorous fish
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	B	C	D	E
505			Chloroform	4 of 136
506			Vanadium	6 of 13
507			Perchlorate	5 of 21
508			Toluene	11 of 136
509			Acenaphthene	24 of 102
510			Chrysene	10 of 102
511			Fluoranthene	11 of 102
512			1,4-Dichlorobenzene	2 of 128
513			Pyrene	11 of 102
514			Zinc	1 of 55
515			Benzo(k)fluoranthene	10 of 102
516			Dibenzo(a,h)anthracene	8 of 102
517			o-Xylene	12 of 136
518			1,2,4-Trimethylbenzene	11 of 41
519			Gasoline fraction (aliphatic): C <sub>4</sub> - C <sub>6</sub>	15 of 68
520			Magnesium	8 of 106
521			Cadmium	10 of 55
522			m,p-Xylene	3 of 136
523			Gasoline fraction (aliphatic): C <sub>6</sub> - C <sub>8</sub>	7 of 62
524			Potassium	2 of 93
525			Cobalt	3 of 13
526			Chloroethane	1 of 136
527			Lead	4 of 55
528			1,3,5-Trimethylbenzene	5 of 41
529			Gasoline fraction (aromatic): C <sub>8</sub> - C <sub>10</sub>	3 of 68
530			Dibenzofuran	3 of 89
531			Beryllium	3 of 93
532			Isopropylbenzene	10 of 136
533			Nickel	3 of 55
534			1,1-Dichloroethene	2 of 136
535			Copper	1 of 45
536	1. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRV	Naphthalene	10 of 268
537			Total DDX	35 of 170 (1 of 170)
538			Benzo(a)pyrene	3 of 245
539			Benzo(a)anthracene	2 of 245
540			4,4'-DDT	19 of 170 (0 of 170)
541			Trichloroethene	1 of 23
542			bis(2-ethylhexyl)phthalate	2 of 190
543			Ethylbenzene	1 of 23
544			Monobutyltin	1 of 167
545			Total PCB	2 of 160 (0 of 160)
546			Zinc	1 of 167
547	1. Water exposure contaminant concentrations compared to AWQC or TRVs	2. Transition zone water concentration compared to AWQC or TRV (applies to sculpin species only within this assessment endpoint)	Cyanide	34 of 34
548			Total DDX	10 of 14
549			Benzo(a)pyrene	34 of 102
550			Trichloroethene	2 of 136
551			4,4'-DDT	3 of 14
552			4,4'-DDD	6 of 14
553			Benzo(a)anthracene	31 of 102
554			Barium	93 of 93
555			Naphthalene	31 of 149

	F	G
505	21	Arkema acid plant area
506	19	Siltronic
507	19	Arkema chlorate plant area
508	18	Siltronic
509	17	Siltropic
510	17	Siltropic
511	17	Siltropic
512	16	Rhône Poulenc
513	15	Siltropic
514	14	ARCO
515	14	Siltropic
516	13	Siltropic
517	12	Siltropic
518	9.6	Siltropic
519	7.3	Gasco
520	7.0	Arkema acid plant area
521	5.8	Rhône Poulenc
522	4.4	Siltropic
523	4.3	Gasco
524	3.7	Arkema chlorate plant area
525	3.6	Siltropic
526	3.4	Gunderson
527	3.0	Mobil Oil
528	3.0	Siltropic
529	2.7	Gasco
530	2.2	Gasco
531	2.0	Willbridge
532	2.0	Siltropic
533	1.6	Arkema chlorate plant area
534	1.6	Siltropic
535	1.3	Rhône Poulenc
536	50	River mile 5.5 to 6.5
537	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
538	14	River mile 5.5 to 6.5
539	10	River mile 5.5 to 6.5
540	4.7 (0.43)	River mile 5.5 to 9.5
541	4.1	River mile 6.5 to 7.5
542	2.3	River mile 3.5 to 4.5
543	1.6	River mile 6.5 to 7.5
544	1.2	River mile 10.5 to 11.8
545	1.2 (0.089)	River mile 6.5 to 7.5
546	1.1	River mile 9.5 to 10.5
547	4400	Gasco
548	3100 (280)	Arkema acid plant area
549	2700	Siltropic
550	1900	Siltropic
551	1800 (160)	Arkema acid plant area
552	1300	Arkema acid plant area
553	1200	Siltropic
554	1100	Arkema chlorate plant area
555	1100	Siltropic

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537	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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	5. Invertivorous fish
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	B	C	D	E
556		2,4-DDD		10 of 14
557		Carbon disulfide		4 of 136
558		Manganese		105 of 106
559		Gasoline fraction (aliphatic): C <sub>10</sub> - C <sub>12</sub>		36 of 68
560		Iron		101 of 106
561		Chlorobenzene		3 of 136
562		4,4'-DDE		3 of 14
563		cis-1,2-Dichloroethene		5 of 136
564		2,4-DDT		3 of 14
565		Anthracene		28 of 102
566		Benzo(g,h,i)perylene		13 of 102
567		Indeno(1,2,3-cd)pyrene		13 of 102
568		Phenanthrene		36 of 102
569		Ethylbenzene		15 of 136
570		Sodium		11 of 93
571		Benzo(b)fluoranthene		13 of 102
572		1,2-Dichlorobenzene		5 of 136
573		2-methylnaphthalene		11 of 89
574		Total xylenes		13 of 136
575		Benzene		9 of 136
576		Fluorene		36 of 102
577		Chloroform		4 of 136
578		Vanadium		6 of 13
579		Perchlorate		5 of 21
580		Toluene		11 of 136
581		Acenaphthene		24 of 102
582		Chrysene		10 of 102
583		Fluoranthene		11 of 102
584		1,4-Dichlorobenzene		2 of 128
585		Pyrene		11 of 102
586		Zinc		1 of 55
587		Benzo(k)fluoranthene		10 of 102
588		Dibenzo(a,h)anthracene		8 of 102
589		o-Xylene		12 of 136
590		1,2,4-Trimethylbenzene		11 of 41
591		Gasoline fraction (aliphatic): C <sub>4</sub> - C <sub>6</sub>		15 of 68
592		Magnesium		8 of 106
593		Cadmium		10 of 55
594		m,p-Xylene		3 of 136
595		Gasoline fraction (aliphatic): C <sub>6</sub> - C <sub>8</sub>		7 of 62
596		Potassium		2 of 93
597		Cobalt		3 of 13
598		Chloroethane		1 of 136
599		Lead		4 of 55
600		1,3,5-Trimethylbenzene		5 of 41
601		Gasoline fraction (aromatic): C <sub>8</sub> - C <sub>10</sub>		3 of 68
602		Dibenzofuran		3 of 89
603		Beryllium		3 of 93
604		Isopropylbenzene		10 of 136
605		Nickel		3 of 55
606		1,1-Dichloroethene		2 of 136
607		Copper		1 of 45
608	2. Fish tissue data (modeled or field collected) compared to tissue based TRVs	1. Empirical (field-collected) fish whole body concentration relative to tissue TRVs	Total PCB (Sculpin) bis(2-ethylhexyl)phthalate (Sculpin)	4 of 38 1 of 38
609				

	F	G
556	1100	Arkema acid plant area
557	870	Gasco
558	550	Arkema chlorate plant area
559	540	Gasco
560	250	Arkema chlorate plant area
561	190	Arkema acid plant area
562	120	Arkema acid plant area
563	110	Siltrophic
564	93	Arkema acid plant area
565	87	Siltrophic
566	66	Siltrophic
567	61	Siltrophic
568	57	Siltrophic
569	57	Siltrophic
570	55	Arkema chlorate plant area
571	49	Siltrophic
572	46	Rhône Poulenc
573	40	Gasco
574	34	Siltrophic
575	30	Siltrophic
576	28	Siltrophic
577	21	Arkema acid plant area
578	19	Siltrophic
579	19	Arkema chlorate plant area
580	18	Siltrophic
581	17	Siltrophic
582	17	Siltrophic
583	17	Siltrophic
584	16	Rhône Poulenc
585	15	Siltrophic
586	14	ARCO
587	14	Siltrophic
588	13	Siltrophic
589	12	Siltrophic
590	9.6	Siltrophic
591	7.3	Gasco
592	7.0	Arkema acid plant area
593	5.8	Rhône Poulenc
594	4.4	Siltrophic
595	4.3	Gasco
596	3.7	Arkema chlorate plant area
597	3.6	Siltrophic
598	3.4	Gunderson
599	3.0	Mobil Oil
600	3.0	Siltrophic
601	2.7	Gasco
602	2.2	Gasco
603	2.0	Willbridge
604	2.0	Siltrophic
605	1.6	Arkema chlorate plant area
606	1.6	Siltrophic
607	1.3	Rhône Poulenc
608	9.4	
609	2.9	TRV incorrect in BERA. Need to recalculate with correct TRV of 1.6 mg/kg as per EPA's Sept 3, 2008 guidance. May drop out as a COC

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	5. Invertivorous fish
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	6. Omnivorous fish
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	6. Omnivorous fish
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	6. Omnivorous fish
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	6. Omnivorous fish
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	6. Omnivorous fish
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	7. Piscivorous fish
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	B	C	D	E
610		Lead (Peachmouth)		1 of 4
611		Copper (Sculpin)		3 of 38
612		Total DDX (Sculpin)		1 of 38
	2. Fish tissue data (modeled or field collected) compared to tissue based TRVs	2. Predicted (BSAF or FWM) fish whole body concentration relative to tissue TRVs (applies to sculpin species only within this assessment endpoint)		
613		Total PCB (Sculpin)		90 of 1100
614		Total DDX (Sculpin)		29 of 1128
	3. Ingested dietary dose of contaminants compared to dietary TRVs	1. Dietary dose compared to dietary TRVs		
615		Copper (Sculpin)		1 of 35
616		Cadmium (Juvenile Chinook salmon)		35 of 35
617		Copper (Juvenile Chinook salmon)		35 of 35
618		Cadmium (Sculpin)		2 of 35
619		Copper (Peachmouth)		1 of 4
	3. Ingested dietary dose of contaminants compared to dietary TRVs	2. Dietary dose compared to dietary TRVs to also include stomach content data or other approaches refined specifically for PAHs (juvenile Chinook salmon only)		
620		None		0 of 5
	1. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRV		
621		Naphthalene		10 of 268
622		Total DDX		35 of 170 (1 of 170)
623		Benzo(a)pyrene		3 of 245
624		Benzo(a)anthracene		2 of 245
625		4,4'-DDT		19 of 170 (0 of 170)
626		Trichloroethene		1 of 23
627		bis(2-ethylhexyl)phthalate		2 of 190
628		Ethylbenzene		1 of 23
629		Monobutyltin		1 of 167
630		Total PCB		2 of 160 (0 of 160)
631		Zinc		1 of 167
	2. Fish tissue data (modeled or field collected) compared to tissue based TRVs	1. Empirical (field-collected) fish whole body concentration relative to tissue TRVs		
632		Total PCB (Largescale sucker)		2 of 6
	2. Fish tissue data (modeled or field collected) compared to tissue based TRVs	2. Tissue-based TRV approach for dioxin-like contaminants using literature values and incorporating toxic equivalents (TEQs) based on the World Health Organization toxic equivalent factors (TEFs). Risk from other compounds assessed in uncertainty analysis (chemical specific, carp only).		
633		None		0 of 15
	3. Ingested dietary dose of contaminants compared to dietary TRVs	1. Dietary dose compared to dietary TRVs		
634		Copper (White sturgeon)		1 of 1
635		Copper (Largescale sucker)		1 of 1
	4. Fish condition or incidence of lesions (primarily for PAHs)	1. Compare lesion incidence to areas of contamination and/or lesion-based TRVs (if relevant to receptor species)		423 of 1406 (using threshold sediment value of 2731 µg/kg total PAH for increase in any lesion prevalence from Stern et al. (2003))
636		Total PAH		
	1. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRV		
637		Naphthalene		10 of 268

	F	G
610	2.7	
611	2.3	
612	1.9	TRV incorrect in BERA. Need to recalculate with correct TRV (0.68 mg/kg total DDx as per EPA's Sept 9, 2008 guidance to LWG
613	110	
614	21	TRV incorrect in BERA. Need to recalculate with correct TRV (0.68 mg/kg total DDx as per EPA's Sept 9, 2008 guidance to LWG
615	3.6	
616	3.5	Sitewide
617	2.5	Sitewide
618	2.2	
619	1.0	
620	NA	
621	50	River mile 5.5 to 6.5
622	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
623	14	River mile 5.5 to 6.5
624	10	River mile 5.5 to 6.5
625	4.7 (0.43)	River mile 5.5 to 9.5
626	4.1	River mile 6.5 to 7.5
627	2.3	River mile 3.5 to 4.5
628	1.6	River mile 6.5 to 7.5
629	1.2	River mile 10.5 to 11.8
630	1.2 (0.089)	River mile 6.5 to 7.5
631	1.1	River mile 9.5 to 10.5
632	2.2	Total DDx TRV incorrect in BERA. Need to recalculate with correct TRV (0.68 mg/kg total DDx as per EPA's Sept 9, 2008 guidance to LWG
633		Check this. Result sounds fishy given maximum total PCB in carp tissue of 25.1 mg/kg in a composite from river mile 4 - 8. I didn't see a TEQ for fish calculation in the BERA database, but found one for birds and mammals eating carp, making me think they should be able to calculate one for carp itself.
634	1.3	Sitewide
635	1.1	Sitewide
636	2700	
637	50	River mile 5.5 to 6.5

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620	Discussion on page 365 of main text, and in attachment 12. PAH in prey concentrations screened out, not a COC.
621	
622	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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633	Carp, bullhead and black crappie would have several COCs, including total PCB, if evaluated the same as other fish. Pull in HQs from uncertainty or our own calculations?
634	
635	
636	Text discussion starts on p 472 of BERA. Willamette River white sturgeon lesion incidence marginally higher (55%) than found in Columbia River (25 - 46%) white sturgeon. Semi-quantitative measurement endpoint, cannot definitively be linked to effects on survival, reproduction or growth.
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	7. Piscivorous fish
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	7. Piscivorous fish
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	7. Piscivorous fish
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	8. Detritivorous fish
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	8. Detritivorous fish
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	B	C	D	E
638		Total DDx		35 of 170 (1 of 170)
639		Benzo(a)pyrene		3 of 245
640		Benzo(a)anthracene		2 of 245
641		4,4'-DDT		19 of 170 (0 of 170)
642		Trichloroethene		1 of 23
643		bis(2-ethylhexyl)phthalate		2 of 190
644		Ethylbenzene		1 of 23
645		Monobutyltin		1 of 167
646		Total PCB		2 of 160 (0 of 160)
647		Zinc		1 of 167
	2. Fish tissue data (modeled or field collected) compared to tissue based TRVs	1. Empirical (field-collected) fish whole body concentration relative to tissue TRVs		
648		Lead (Smallmouth bass)		2 of 32
649		bis(2-ethylhexyl)phthalate (Smallmouth bass)		2 of 32
650		Total PCB (Smallmouth bass)		9 of 32
651		Antimony (Smallmouth bass)		1 of 32
652		Total PCB (Northern pikeminnow)		2 of 6
	2. Fish tissue data (modeled or field collected) compared to tissue based TRVs	2. Predicted (BSAF or FWM) whole body concentration relative to tissue TRVs (Smallmouth bass only)		
653		Can't find this anywhere in BERA. Could estimate from food web model. Have LWG calculate these.		
654	3. Ingested dietary dose of contaminants compared to dietary TRVs	1. Dietary dose compared to dietary TRVs	Copper (Northern pikeminnow)	2 of 11
	1. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRV	Naphthalene	
655			Total DDx	10 of 268
656			Benzo(a)pyrene	35 of 170 (1 of 170)
657			Benzo(a)anthracene	3 of 245
658			4,4'-DDT	2 of 245
659			Trichloroethene	19 of 170 (0 of 170)
660			bis(2-ethylhexyl)phthalate	1 of 23
661			Ethylbenzene	2 of 190
662			Monobutyltin	1 of 167
663			Total PCB	2 of 160 (0 of 160)
664			Zinc	1 of 167
665	1. Water exposure contaminant concentrations compared to AWQC or TRVs	2. Transition zone water concentration compared to AWQC or TRV	Cyanide	34 of 34
666			Total DDx	10 of 14
667			Benzo(a)pyrene	34 of 102
668			Trichloroethene	2 of 136
669			4,4'-DDT	3 of 14
670			4,4'-DDD	6 of 14
671			Benzo(a)anthracene	31 of 102
672			Barium	93 of 93
673			Naphthalene	31 of 149
674			2,4-DDD	10 of 14
675			Carbon disulfide	4 of 136
676			Manganese	105 of 106
677			Gasoline fraction (aliphatic): C <sub>10</sub> - C <sub>12</sub>	36 of 68
678			Iron	101 of 106
679			Chlorobenzene	3 of 136
680			4,4'-DDE	3 of 14
681			cis-1,2-Dichloroethene	5 of 136
682			2,4-DDT	3 of 14
683			Anthracene	28 of 102
684				

	F	G
638	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
639	14	River mile 5.5 to 6.5
640	10	River mile 5.5 to 6.5
641	4.7 (0.43)	River mile 5.5 to 9.5
642	4.1	River mile 6.5 to 7.5
643	2.3	River mile 3.5 to 4.5
644	1.6	River mile 6.5 to 7.5
645	1.2	River mile 10.5 to 11.8
646	1.2 (0.089)	River mile 6.5 to 7.5
647	1.1	River mile 9.5 to 10.5
648	280	Total DDx TRV incorrect in BERA. Need to recalculate with correct TRV (0.68 mg/kg total DDx as per EPA's Sept 9, 2008 guidance to LWG. At least one bass sample would screen in.
649	9.1	TRV incorrect in BERA. Need to recalculate with correct TRV of 1.6 mg/kg as per EPA's Sept 3, 2008 guidance. Won't drop out but will lower HQ.
650	7.1	
651	5.4	
652	2.0	
653		
654	1.5	Swan Island Lagoon, River mile 10.5 to 11.8
655	50	River mile 5.5 to 6.5
656	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
657	14	River mile 5.5 to 6.5
658	10	River mile 5.5 to 6.5
659	4.7 (0.43)	River mile 5.5 to 9.5
660	4.1	River mile 6.5 to 7.5
661	2.3	River mile 3.5 to 4.5
662	1.6	River mile 6.5 to 7.5
663	1.2	River mile 10.5 to 11.8
664	1.2 (0.089)	River mile 6.5 to 7.5
665	1.1	River mile 9.5 to 10.5
666	4400	Gasco
667	3100 (280)	Arkema acid plant area
668	2700	Siltronic
669	1900	Siltronic
670	1800 (160)	Arkema acid plant area
671	1300	Arkema acid plant area
672	1200	Siltronic
673	1100	Arkema chlorate plant area
674	1100	Siltronic
675	1100	Arkema acid plant area
676	870	Gasco
677	550	Arkema chlorate plant area
678	540	Gasco
679	250	Arkema chlorate plant area
680	190	Arkema acid plant area
681	120	Arkema acid plant area
682	110	Siltronic
683	93	Arkema acid plant area
684	87	Siltronic

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638	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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653	Missing from BERA. Can be calculated for total PCB, total DDx, possibly PCB and dioxin/furan TEQs
654	
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656	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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667	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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670	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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726	8. Detritivorous fish
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727	8. Detritivorous fish
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729	9. Amphibians
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	B	C	D	E
685		Benzo(g,h,i)perylene		13 of 102
686		Indeno(1,2,3-cd)pyrene		13 of 102
687		Phenanthrene		36 of 102
688		Ethylbenzene		15 of 136
689		Sodium		11 of 93
690		Benzo(b)fluoranthene		13 of 102
691		1,2-Dichlorobenzene		5 of 136
692		2-methylnaphthalene		11 of 89
693		Total xylenes		13 of 136
694		Benzene		9 of 136
695		Fluorene		36 of 102
696		Chloroform		4 of 136
697		Vanadium		6 of 13
698		Perchlorate		5 of 21
699		Toluene		11 of 136
700		Acenaphthene		24 of 102
701		Chrysene		10 of 102
702		Fluoranthene		11 of 102
703		1,4-Dichlorobenzene		2 of 128
704		Pyrene		11 of 102
705		Zinc		1 of 55
706		Benzo(k)fluoranthene		10 of 102
707		Dibenzo(a,h)anthracene		8 of 102
708		o-Xylene		12 of 136
709		1,2,4-Trimethylbenzene		11 of 41
710		Gasoline fraction (aliphatic): C <sub>4</sub> - C <sub>6</sub>		15 of 68
711		Magnesium		8 of 106
712		Cadmium		10 of 55
713		m,p-Xylene		3 of 136
714		Gasoline fraction (aliphatic): C <sub>6</sub> - C <sub>8</sub>		7 of 62
715		Potassium		2 of 93
716		Cobalt		3 of 13
717		Chloroethane		1 of 136
718		Lead		4 of 55
719		1,3,5-Trimethylbenzene		5 of 41
720		Gasoline fraction (aromatic): C <sub>8</sub> - C <sub>10</sub>		3 of 68
721		Dibenzofuran		3 of 89
722		Beryllium		3 of 93
723		Isopropylbenzene		10 of 136
724		Nickel		3 of 55
725		1,1-Dichloroethene		2 of 136
726		Copper		1 of 45
727	1. Water exposure contaminant concentrations compared to AWQC or TRVs	3. Laboratory 96 hour LC <sub>50</sub> measurements for Pacific lamprey ammocoetes exposed to 6 chemicals individually in laboratory water	Results presented in Table 11-? (results don't fit in this format). Survival of ammocoetes in 96 hour LC <sub>50</sub> tests recorded.	NA
728	2. Fish tissue contaminant data compared to tissue based TRVs	1. Pacific lamprey ammocoete whole body tissue	Copper	4 of 4
729	1. Water exposure contaminant concentrations compared to AWQC or TRVs	1. Surface water concentration compared to AWQC or TRVs	Naphthalene	1 of 159
730			Total DDx	1 of 121
731			Benzo(a)pyrene	3 of 158
732			Benzo(a)anthracene	2 of 158
733			Trichloroethene	1 of 23
734			4,4'-DDT	1 of 121

	F	G
685	66	Siltronic
686	61	Siltronic
687	57	Siltronic
688	57	Siltronic
689	55	Arkema chlorate plant area
690	49	Siltronic
691	46	Rhône Poulenc
692	40	Gasco
693	34	Siltronic
694	30	Siltronic
695	28	Siltronic
696	21	Arkema acid plant area
697	19	Siltronic
698	19	Arkema chlorate plant area
699	18	Siltronic
700	17	Siltronic
701	17	Siltronic
702	17	Siltronic
703	16	Rhône Poulenc
704	15	Siltronic
705	14	ARCO
706	14	Siltronic
707	13	Siltronic
708	12	Siltronic
709	9.6	Siltronic
710	7.3	Gasco
711	7.0	Arkema acid plant area
712	5.8	Rhône Poulenc
713	4.4	Siltronic
714	4.3	Gasco
715	3.7	Arkema chlorate plant area
716	3.6	Siltronic
717	3.4	Gunderson
718	3.0	Mobil Oil
719	3.0	Siltronic
720	2.7	Gasco
721	2.2	Gasco
722	2.0	Willbridge
723	2.0	Siltronic
724	1.6	Arkema chlorate plant area
725	1.6	Siltronic
726	1.3	Rhône Poulenc
727	NA	NA
728	2.2	River mile 2.2 to 8.8
729	50	River mile 5.5 to 6.5
730	20 (1.8)	River mile 1.5 to 2.5, river mile 5.5 to 9.5
731	14	River mile 5.5 to 6.5
732	10	River mile 5.5 to 6.5
733	4.1	River mile 6.5 to 7.5
734	3.9 (0.35)	River mile 5.5 to 9.5

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727	96 hr LC50s: PCP - 31, Cu - 46, aniline - 430,000, diazinon - 8900, naphthalene - 10,000, lindane - >2680, all µg/L
728	Total DDx TRV incorrect in BERA. Need to recalculate with correct TRV (0.68 mg/kg total DDx as per EPA's Sept 9, 2008 guidance to LWG
729	
730	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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	9. Amphibians
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	10. Piscivorous birds
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	10. Piscivorous birds
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	10. Piscivorous birds
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	10. Piscivorous birds
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	B	C	D	E
735		Ethylbenzene		1 of 23
736		bis(2-ethylhexyl)phthalate		1 of 129
737		Zinc		1 of 117
	1. Water exposure contaminant concentrations compared to AWQC or TRVs	2. Transition zone water concentration compared to AWQC or TRVs		
738		Total DDx		8 of 12 (8 of 12)
739		4,4'-DDT		3 of 12 (3 of 12)
740		Barium		49 of 49
741		Carbon disulfide		1 of 56
742		Manganese		49 of 49
743		Iron		46 of 49
744		Chlorobenzene		2 of 56
745		Gasoline fraction (aliphatic): C <sub>10</sub> - C <sub>12</sub>		12 of 22
746		Naphthalene		5 of 72
747		Sodium		9 of 49
748		Cyanide		1 of 2
749		Chloroform		2 of 56
750		Perchlorate		3 of 17
751		Benzo(a)pyrene		8 of 37
752		Zinc		1 of 30
753		Benzo(a)anthracene		9 of 37
754		Magnesium		6 of 49
755		Cadmium		6 of 30
756		Phenanthrene		7 of 37
757		Fluorene		6 of 37
758		Ethylbenzene		1 of 56
759		Potassium		2 of 49
760		Anthracene		3 of 37
761		Chloroethane		1 of 56
762		2-methylnaphthalene		3 of 37
763		Acenaphthene		2 of 37
764		Lead		2 of 30
765		Toluene		1 of 56
766		1,2,4-Trimethylbenzene		1 of 5
767		1,2-Dichlorobenzene		1 of 56
768		Nickel		2 of 30
769		Isopropylbenzene		1 of 56
770		Gasoline fraction (aliphatic): C <sub>4</sub> - C <sub>6</sub>		2 of 22
771		Copper		1 of 22
	1. Ingested dietary dose of contaminants compared to dietary TRVs	1. Osprey		
772		Lead		1 of 11
773		Total PCB		1 of 11
	1. Ingested dietary dose of contaminants compared to dietary TRVs	2. Bald eagle		
774		Total PCB		11 of 11
775		Mercury		11 of 11
	2. Egg contaminant concentrations compared to egg tissue TRVs	1. Osprey		
776		Total PCB		2 of 5
777		Total TEQ		5 of 5
778		Total PCB TEQ		4 of 5
779		Total dioxin/furan TEQ		1 of 5
	2. Egg contaminant concentrations compared to egg tissue TRVs	2. Bald eagle		
780		Total TEQ		5 of 5
781		Total PCB TEQ		5 of 5
782		Total dioxin/furan TEQ		5 of 5
783		Total PCB		4 of 5
784		4,4'-DDE		2 of 5

	F	G
735	1.6	River mile 6.5 to 7.5
736	1.2	River mile 3.5 to 4.5
737	1.1	River mile 9.5 to 10.5
738	3100 (280)	Arkema acid plant area
739	1800 (160)	Arkema acid plant area
740	1100	
741	870	
742	550	
743	250	
744	190	
745	100	
746	57	
747	55	
748	23	
749	21	
750	19	
751	15	
752	14	
753	8.5	
754	7.0	
755	5.8	
756	4.6	
757	4.6	
758	4.5	
759	3.7	
760	3.6	
761	3.4	
762	3.4	
763	3.3	
764	3.0	
765	2.9	
766	2.0	
767	1.9	
768	1.6	
769	1.3	
770	1.3	
771	1.3	
772	7.8	
773	1.1	
774	3.9	
775	1.7	
776	4.4	
777	3.8	
778	3.2	
779	1.8	
780	53	
781	44	
782	25	
783	6.6	
784	1.9	

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738	Values in () are from LWG derived TRVs. Need footnote at end of table saying this.
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785	11. Omnivorous birds
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796	13. Aquatic dependent mammals
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802	13. Aquatic dependent mammals
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	B	C	D	E
785	1. Ingested dietary dose of contaminants compared to dietary TRVs	1. Hooded merganser	Total PCB	3 of 11
786	1. Ingested dietary dose of contaminants compared to dietary TRVs	1. Spotted sandpiper	Total TEQ Total dioxin/furan TEQ	4 of 8 1 of 8
787			Total PCB	5 of 8
788			Total PCB TEQ	2 of 8
789			Aldrin	1 of 8
790			Benzo(a)pyrene	1 of 8
791			Dibutyl phthalate	1 of 8
792			Total DDX	1 of 8
793			Copper	3 of 8
794			Sum DDE	1 of 8
795	1. Ingested dietary dose of contaminants compared to dietary TRVs	1. Mink	Total PCB Total TEQ	11 of 11 11 of 11
796			Lead	1 of 11
797			Total PCB TEQ	11 of 11
798			Total dioxin/furan TEQ	1 of 11
799			Aluminum	11 of 11
800				
801	1. Ingested dietary dose of contaminants compared to dietary TRVs	2. River otter	Total PCB Total TEQ	4 of 4 4 of 4
802			Total PCB TEQ	2 of 4
803				
804				

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785	3.8	
786	20	
787	17	
788	12	
789	11	
790	1.7	
791	1.6	
792	1.4	
793	1.4	
794	1.3	
795	1.3	
796	33	
797	12	
798	4.0	
799	2.4	
800	2.0	
801	1.6	
802	31	
803	2.3	
804	1.5	

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